Radar

USSR

UDC 62.503.53

PAMFILOV, P. K., Applicant; Moscow, Aviation Technology Institute

"Reactive Selsyn Transformer Device"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 1, 1970, p 55, Author Certificate No 258420 Class 21c.

Abstract: This author certificate introduces a selsyn transformer device for tracking systems, containing a transmitting selsyn provided with synch coils and a receiving selsyn provided with an energizer and output coils. For simplicity reasons and for increasing its reliability, it contains a differential transmitting selsyn, with one system of synch coils connected to the synch coils of the basic transmitting selsyn, while the other system of synch coils is connected to the synch coils of the receiving selsyn.

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Soviet Inventions Illustrated, Section II Electrical, Derwent, 9

225289 IMPROVEMENT TO SELSYN TRANSFORMER UNIT (of Authors Cert. 105616)(for obtaining a signal voltage proportional to the mismatch angle between two axes) consisting of a selsyn data unit and selsyn receiver with windings mounted perpendicular to each other on their stator and rotor.

To give increased reduction of the output signal without increasing the number of slots, several pairs of windings are placed perpendicular to each other in the existing slots of the stator and rotor. These windings have an unlike number of poles

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and the windings of two adjacent pairs on the rotor are connected concordantly while consequent pairs on the stator are cross-connected.

To enable the number of slots to be reduced for the same amount of reduction the number of poles in the various pairs of windings are chosen to be the same while the magnetic cores on which they are wound are insulated from each other.

19.8.66 as 1097971/26-24.Add to 105616. R.K.Pamfilov, Moscow Aviation Technological Inst. (20.12.68.) Bul 27/29.8.68. Class 21c, Int.Cl. G 05f.

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19561410

USSR

PAMFILOV, R.K.

UDC 62-531

"Polarization Phase Tracking System"

USSR Author's certificate, 21c, 46/05 (G05f), No 255391, Filed 23/11/67, Published 31/03/70 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, 1971, Abstract No 1A276P by V. Sh.)

Translation: The tracking system (TS) suggested uses polarization filters (polaroids). The TS contains a light source, the beam of which passes through a polaroid rotated by a synchronous electric motor. A light dividing device separates the main beam of polarized light into two beams, passing through polaroids set on the master and actuating shafts of the TS. The light passing through these polaroids strikes photosensors, the signals from which are sent to a phase-sensing amplifier. The variable voltage developed by the amplifier carries information on the mismatch between axes of the TS

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PAMFILOV, R.K., USSR Author's certificate, 21c, 46/05 (G05f), No 255391, Filed 23/11/67, Published 31/03/70 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, 1971, Abstract No 1A276P by V. Sh.)

in the form of the difference in phases of the two variable voltages. When the phase difference deviates from the quantity corresponding to the matched position of the axes, a signal appears at the output of the amplifier, which is sent to a reversible actuating electric AC motor, rotating the actuating shaft, together with its polaroid, to the new matched position through a reducing gear. The use of the phase method for separation of shaft mismatch increases the reliability of the polarization TS. One figure.

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USSR

UDC: 669.295.053.4.094(088.8)

PETRUN'KO, A. N., MEYERSON, G. A., ROGATKIN, A. A., PAMPUSHKO, N. A., OLESOV, Yu. G.

"Method of Processing of Iron-Titanium Concentrates"

USSR Author's Certificate Number 353992, Filed 12/07/70, Published 10/11/72 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G212P, by G. Svodtseva).

Translation: A method of processing of Fe-Ti concentrates, consisting in reduction of the concentrates by carbon in an atmosphere of N_2 at 1200-1400°, leaching with HCl and chlorination of the residue. In order to increase the productivity of the process and reduction of the concentrate to oxicarbonitride containing 5-7% O_2, reduction is performed in a stream of rarefied N_2 with a residual gas pressure of 0.2-0.4 atm. abs. at 1200-1500°, while $FeCl_3$ is crystallized from the solution produced after leaching, then reduced by the hydrogen formed during leaching to Fe powdor.

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USSR

UDC 669.293.017:537.312.62

PAN, V. M., LATYSHEVA, V. I., SUDOVTSOV, A. I., and MEL'NIKOV, V. I.

"A Possible Cause for the High Critical Temperature of the Superconducting Compound $Nb_3Al_{0.8}Ge_{0.2}$"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 92-98

Translation: Isothermal cross-sections of a sector of the diagram of phase equilibria of the system niobium-aluminum-germanium are constructed for niobium-rich alloys (up to 27.5 at.% aluminum and germanium) at 1,700 and 1,000°C are constructed. It is demonstrated that at these temperatures the isomorphic compounds Nb_3Al and Nb_3Ge form a continuous series of solid solutions. The form of the area of homogeneity of the β-$Nb_3Al_xGe_{1-x}$ phase is studied. It is demonstrated that in the system Nb_3Al-Nb_3Ge (that is, in the cross-section of the niobium-aluminum-germanium system with constant niobium content 75 at.%), only those alloys which have a germanium concentration of not over 5-7 at.% are single-phase (these concentrations of germanium correspond approximately to the trinary compound with the formula $Nb_3Al_{0.8}Ge_{0.2}$).

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USSR

PAN, V. M., et al., Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 92-98

It is also demonstrated that the critical temperature of the β-$Nb_3Al_xGe_{1-x}$ phase increases (apparently according to a parabolic rule) with increasing content of germanium under the condition of retention high (not under stoichiometric, that is, 25 at.%) total concentration of component B (that is, % Al + % Ge). If the total concentration of component B begins to drop and falls below the stoichiometric level, the critical temperature drops sharply.

The form of the area of homogeneity of the β-$Nb_3Al_xGe_{1-x}$ phase determined in this work shows that the highest concentration of germanium at which the stoichiometric composition of the phase (% Al + % Ge $\geq$ 25) is still attained is 5-7 at.%. It is therefore clear that this composition, corresponding to the formula $Nb_3Al_{0.8}Ge_{0.2}$, should and does show the highest critical temperature.

6 figures; 20 biblio. refs.

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USSR UDC 669.293.71.855.017.13

SVECHNIKOV, V. N., PAN, V. M., and LATYSHEVA, V. I., Institute of Metal Physics, Academy of Sciences UKrSSR

"Investigation of the Effect of Cerium on the Phase Composition and Some Properties of Niobium-Aluminum Alloys"

Kiev, Metallofizika, No 32, 1970, pp 28-33

Translation: A study was made of the effect of the most widespread rare-earth elements (cerium, lanthanum, yttrium, and praseodymium) on the mechanical properties of niobium, as well as the effect of one of them (cerium) on the phase composition and some properties of niobium-aluminum alloys. It was shown that alloying with cerium, lanthanum, yttrium, and praseodymium lowers the hardness of initial niobium by more than one and a half times, and the cold rolling of cast alloys with subsequent recrystallization annealing makes it possible to lower the hardness of initial niobium three times.

Isothermal sections of the triple niobium-aluminum-cerium

USSR

SVECHNIKOV, V. N., et al., Metallofizika, No 32, 1970, pp 28-33

system at temperatures of 1600°C and 1100°C were constructed. At the same time, a marked solubility of cerium was detected in the β and δ phases, amounting to 7.5 and 10 at.%, respectively, at 1100°C. With a rise in temperature cerium solubility in the β and δ phases is slightly lowered.

A monotonic decrease in the solidity of the β phase from 940 to 600 kg/mm^2 with an increase in the content of cerium in it, as well as a decrease in the solidity of the a-solid niobium-based solution with an increase in the content of cerium, was established.

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USSR

UDC: 537.312.62

PAN, V. M., LATYSHEVA, V. I., SUDOVTSOV, A. I., MEL'NIKOV, V. I.

"On a Possible Reason for the High Critical Temperature of the Superconducting Compound $Nb_3Al_{0.8}Ce_{0.2}$"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 92-98 (from RZh--Radiotekhnika, No 5, May 71, Abstract No 5D548)

Translation: The authors plot the isotherms of the cross section of the segment of the phase equilibria diagram of the niobium-aluminum-germanium system for niobium-rich alloys (up to 27.5 atomic percent aluminum and germanium) at 1700 and 1000°C. It is shown that the isomorphic compounds of Nb_3Al and Nb_2Ge form a continuous series of solid solutions at these temperatures. The form of the region of homogeneity of the phase β-$Nb_3Al_xCe_{1-x}$ is studied. It is shown that in the Nb_3Al-Nb_3Ge system (i. e. in the cross section of the niobium-aluminum germanium system with a constant niobium concentration of 75 atomic percent) the only single-phase alloys are those which have a concentration of no more than 5-7 atomic percent (the above mentioned concentrations of germanium correspond approximately to a ternary compound with the formula $Nb_3Al_{0.8}Ge_{0.2}$). It is also shown that the critical temperature of the phase β-$Nb_3Al_xCe_{1-x}$ increases (apparently according to a

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PAN, V. M. et al., Probl. sverkhprovodyashch. materialov, Moscow, "Nauka", 1970, pp 92-98

parabolic law) with an increase in the germanium content in the phase under condition of retention of a high (at least stoichiometric, i. e. 25 atomic percent) total concentration of component B (i. e. %Al+%Ge). As soon as the total concentration of component B begins to decrease and becomes lower than the stoichiometric concentration, the critical temperature falls sharply. The form of the region of homogeneity of the phase β-$Nb_3Al_xGe_{1-x}$ determined in this work shows that the highest concentration of germanium at which stoichiometric composition of the phase is still realized (%Al+%Ge $\geq$ 25) is 5-7 atomic percent. Therefore it is clear that for this particular composition, which corresponds to the formula $Nb_3Al_{0.8}Ge_{0.2}$, the highest critical temperature should be and is observed. Six illustrations, bibliography of twenty titles. Authors' abstract.

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USSR UDC: None

ANISHCHENKO, Yu. V. and PANACHEV, F. I.

"Illuminating a Wilson Chamber by a Ruby Laser"

Moscow, Sbornik kratkiye soobshcheniya po fizike, No 12, December 1971, pp 29-35

Abstract: The usual method of illuminating a Wilson chamber is with cylindrical pulse lamps and optical systems using cylindrical lenses, and the result is difficulty in obtaining sufficient illumination contrast for perception of the tracks. Such difficulties are eliminated in the Wilson chamber, measuring 800 by 400 by 220 mm described in this article. Illuminated by a ruby laser in which the ruby measures 15 mm in diameter and 240 mm in length and is pumped by two IFP-5000 lamps, the chamber has been in use for two years. It has been used to solve satisfactorily the problem of measuring the ionization losses of relativistic particles. A diagram of the illumination system is given, and curves for the characteristics of the recording film and for the frequency distribution of events as a function of the specific ionization are plotted. The advantage of this system is the uniformly good lighting obtained throughout the chamber.

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1/2 016 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--AN ESTIMATION OF THE ANGULAR DIMENTIONS OF SCINTILLATING RADIO SOURCES BY SHIFT OF THE HISTOGRAMMS OF SCINTILLATION QUASIPERIODS -U-

AUTHOR--PANADZHYAN, V.G.

COUNTRY OF INFO--USSR

SOURCE--SOOBSHCHENIYA BYURAKANSKOY OBSERVATORII AKADEMIYA NAUK ARMYANSKOY SSR, 1970, NR 41, P 131-133

DATE PUBLISHED-------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS, ATMOSPHERIC SCIENCES

TOPIC TAGS--COSMIC RADIO SOURCE, SCINTILLATION, INTERPLANETARY MATTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/0041 STEP NO--UR/2620/70/000/041/0131/0133

CIRC ACCESSION NO--AP0114441

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0114441

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EXPRESSION FOR ESTIMATION OF THE ANGULAR DIMENTIONS OF SCINTILLATING RADIO SOURCES IS OBTAINED FOR THE CASE WHEN INTERPLANETARY PLASMA IRREGULARITIES MAY BE CONSIDERED AS A THIN PHASE SCREEN. FOR CIRCULARLY SYMMETRICAL GAUSSIAN SOURCE MODEL THE CORRESPONDING EXPRESSION IS 2THETA SUB0 EQUALS 0,175V BAR OVER BAR T PRIME2 MINUS BAR T PRIME2 SUB0, WHERE BAR T IS THE MEAN QUASIPERIOD OF THE RADIO SOURCE UNDER INVESTIGATION AND BAR T SUB0 MINUS THAT OF THE POINT SOURCE.

UNCLASSIFIED

172 022 UNCLASSIFIED PROCESSING DATE--090CT70
TITLE--THE ESTIMATION OF THE ANGULAR DIMENSIONS AND INTENSITIES OF SCINTILLATING COMPONENT OF RADIO SOURCE 3C 161 -U-
AUTHOR--PANADZHYAN, V.G.

COUNTRY OF INFO--USSR

SOURCE--SOOBSHCHENIYA BYURAKANSKOY OBSERVATORII AKADEMIYA NAUK ARMYANSKOY SSR, 1970, NR 41, PP 3-8
DATE PUBLISHED--------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS, PHYSICS

TOPIC TAGS--COSMIC RADIO SOURCE, SCINTILLATION, INTERPLANETARY SPACE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0071 STEP NO--UR/2620/70/000/041/0003/0008

CIRC ACCESSION NO--AP0114467
UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0114467

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXPERIMENTAL CHARACTERISTICS OF SCIENTILLATIONS OF 60 MHZ FREQUENCY OF THE RADIO SOURCE 3C 161 ON THE INTERPLANETARY PLASMA IRREGULARITIES ARE PRESENTED. THE ANGULAR DIMENTIONS OF THE SCIENTILLATING COMPONENT OF RADIO SOURCE 3C 161 IS ABOUT 0.3 AND ITS FLUX DENSITY IS 50 FLUX UNITS OF 60 MHZ AND 60 FLUX UNITS AT 40 MHZ.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--ANGULAR DIMENSIONS OF THE QUASAR 3C 298 AND THE SCINTILLATING COMPONENT OF 3C 273 AT A FREQUENCY OF 60 MHZ -U-
AUTHOR--PANADZHIAN, V.G.

COUNTRY OF INFO--USSR

SOURCE--ASTROFIZIKA, VOL. 6, FEB. 1970, P. 165-167

DATE PUBLISHED--------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS

TOPIC TAGS--QUASAR, SCINTILLATION, DIMENSION ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1485 STEP NO--UR/0388/69/006/000/0165/0167

CIRC ACCESSION NO--AP0125113
UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0125113

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ESTIMATION OF THE ANGULAR DIMENSIONS OF THE QUASAR 3C 298 AND THE SCINTILLATING COMPONENT OF 3C 273 AT 60 MHZ, USING THE METHOD BASED ON SHIFTS IN THE MEAN QUASI PERIODS OF SCINTILLATIONS. IN THE CASE OF A CIRCULARLY SYMMETRICAL GAUSSIAN SOURCE MODEL, THE ANGULAR DIMENSIONS OF 3C 298 AND OF THE SCINTILLATING COMPONENT OF 3C 273 (THE CORE OF COMPONENT A) ARE 0.7 AND 0.5 SEC, RESPECTIVELY. FACILITY: BIURAKANSKAIA ASTROFIZICHESKAIA OBSERVATORIIA, YEREVAN, ARMENIAN SSR.

UNCLASSIFIED

1/2 033 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--MIXING OF DEGENERATE CONFIGURATIONS AND THE FERMI RESONANCE IN MOLECULAR CRYSTALS -U-

AUTHOR-(02)-PANARIN, A.M., STRIZHEVSKIY, V.L.

COUNTRY OF INFO--USSR

SOURCE--UKR. FIZ. ZH. RUSS. ED. 1970, 15(2), 297-302

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MOLECULAR CRYSTAL, ENERGY SPECTRUM, WAVE FUNCTION, EXCITON, DIPOLE INTERACTION, EXCITED STATE, CARBON TETRACHLORIDE, ABSORPTION BAND SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1169 STEP NO--UR/0185/70/015/002/0297/0302

CIRC ACCESSION NO--AP0124824

UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0124824
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY USING THE CUBIC MOL. CRYSTAL AS AN EXAMPLE, THE PROBLEM OF THE MIXING OF THE 3 FOLD DEGENERATE DIPOLE ACTIVE MOL. STATES IS SOLVED. THE ENERGY LEVELS AND THE WAVEFUNCTIONS OF THE CRYSTAL EXCITED STATES ARE FOUND WITH A SMALL K. THE ENERGY SPECTRUM COMPRISES THE 2 LONGITUDINAL AND THE 2 TRANSVERSE EXCITON ZONES; EACH ZONE IS THE LATTER REMAINS 2 FOLD DEGENERATE. THE RATIOS OF THE INTEGRAL INTENSITIES OF THE ABSORPTION BANDS CORRESPONDING TO THE TRANSVERSE ZONES IN THE OPTICAL SPECTRA WERE ALSO STUDIED. A THEORY IS DEVELOPED EMPLOYING THE APPROXM. OF MOL. DIPOLE LONG RANGE INTERACTION. ON THE BASIS OF A GENERAL THEORY, FERMI RESONANCE IS STUDIED IN CCL SUB4 CRYSTALS. THE CALCN. GAVE VERY GOOD AGREEMENT WITH EXPT. AN EXAMPLE SHOWS THAT THE INTENSITY RELATION OF THE ABSORPTION BANDS IS MORE SENSITIVE TO THE RESONANCE INTERACTION THAN THE POSITION OF THESE BANDS IN THE SPECTRUM. FACILITY: KIEV. GUSUNIV. IM. SHEVCHENKO, KIEV, USSR.

UNCLASSIFIED

USSR UDC 633.11:632.38A/Ya

DUBONOSOV, T. S., and PANARIN, I. V., Candidate of Biological Sciences, Candidate of Agricultural Sciences, Krasnodar Scientific Research Agricultural Institute

"A Method for Evaluating Winter Wheat Resistance to Viral Diseases"

Moscow, Selektsiya i Semenovodstvo, No 1, 1972, pp 13-14

Abstract: A method is suggested of creating a background of infection by planting very early winter wheat crops on a bare fallow field (from 15 to 25 August in the central region of Krasnodar Kray). Earlier crops in years unfavorable for overwintering die, while the September crops cannot be a significant source of infection. By the time the shoots of winter wheat planted at the optimum time appear, susceptible plants should be largely infected (50 to 80%) with the main viral diseases. The number of carriers of viral diseases (aphids, mites, leaf hoppers) on the early winter wheat crops is close to the maximum in October, thus ensuring transmission of viruses from diseased to healthy plants. The injury rate is determined before the ear formation stage. Thepercentage of affected plants and degree of injury are established from external signs for each disease separately on a four-point scale.

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1/3 045 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--TELEMETRY ON LAND AND SEA -U-

AUTHOR--PANARIN, V.

COUNTRY OF INFO--USSR

SOURCE--FBIS DAILY REPORT, SOVIET UNION, 12 JUNE 1970, VOL III, NR 114, PP D 3 - D 4
DATE PUBLISHED--12JUN70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, SPACE TECHNOLOGY, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--WORK FUNCTION, WEIGHTLESSNESS, LIFE SUPPORT SYSTEM, INSTRUMENTATION SHIP, BIOTELEMETRY/(U)BORKOVICHI SHIP, (U)PERVITA SHIP, (U)RISTNA SHIP, (U)MORZHOVETS SHIP, (U)KEGOSTROV SHIP, (U)VEGEL SHIP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1686 STEP NO--US/0000/70/003/114/0003/0004

CIRC ACCESSION NO--AP0109668

UNCLASSIFIED

2/3 045 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109668

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OUR SPECIAL CORRESPONDENT VLADIMIR PANARIN REPORTS FROM THE MANNED SPACECRAFT CONTROL CENTER. THEIR MANY DAYS IN ORBIT IN CONDITIONS OF WEIGHTLESSNESS HAS NOT CAUSED A NOTICEABLE REDUCTION IN THE WORKING CAPABILITY OF THE SOYUZ-9 SPACECRAFT'S CREW MEMBERS. THIS FACT WAS EMPHZSIZED IN A TALK WITH JOURNALISTS BY THE HEAD OF A GROUP OF MEDICAL WORKERS HERE AT THE CENTER. THE GROUP IS KEEPING A CONSTANT CHECK ON THE HEALTH OF ANDRIYZN NIKOLAYEV AND VITALIY SEVASTYANOV WITH THE AID OF UP TO DATE TELEMETRY. AN EMINENT SPECIALIST IN THE FIELD OF SPACE MEDICINE SAID THAT THE PHYSIOLOGICAL INDEXES OF THE CREW MEMBERS STABILIZED AFTER 1 TO 3 DAYS IN ORBIT AND AT THE PRESENT TIME THERE ARE NO TENDENCIES INDICATING A CHANGE IN THESE INDEXES. THE INDIVIDUAL FEATURES CHARACTERISTIC OF THE COSMONAUTS ON EARTH ARE BEING MAINTAINED DURING THE TIME OF THE FLIGHT. FOR INSTANCE, THE HEARTBEAT RATE FOR THE SOYUZ-9 COMMANDER WAS HIGHER THAN THAT OF THE FLIGHT ENGINEER. THE SAME RELATIONSHIP IS BEING MAINTAINED IN SPACE. THE COSMONAUTS ARE SLEEPING 8 HOURS OUT OF EVERY 24 HOURS OF FLIGHT. THEIR SLEEP IS TRANQUIL, DEEP AND REFRESHING. IT MAKES THEM CHEERFUL AND ENABLE THEM TO WORK. THE HEAD OF THE GROUP OF MEDICAL WORKERS SPOKE HIGHLY ABOUT THE FUNCTIONING OF THE LIFE SUPPORT SYSTEM OF THE SOYUZ-9CRAFT, WHICH IS CREATING RATHER COMFORTABLE CONDITIONS FOR NIKOLAYEV, AND SEVASTYANOV IN THEIR SPACECRAFT CONDITIONS. TODAY'S CONFERENCE OF THE OPERATIONAL TECHNICAL LEADERSHIP NOTED THE SMOOTH INTERACTION OF TELEMETRY CENTERS ON LAND AND SEA, WHICH ARE PROVIDING STABLE RADIO COMMUNICATIONS WITH THE SPACECRAFT.

UNCLASSIFIED

3/3 045 UNCLASSIFIED

CIRC ACCESSION NO--AP0109668 PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--THE LAND CENTERS ARE PROVIDING RADIO VISIBILITY OVER THE TERRITORY OF THE SOVIET UNION. THE MEASURING CENTERS AT SEA CONSITS OF VESSELS OF THE EXPEDITIONARY FLEET OF THE USSR ACADEMY OF SCIENCES. THE FLAGSHIP, COSMONAUT VLADIMIR KOMAROV, IS CAPABLE OF INDEPENDENTLY CARRYING OUT, IN CONDITIONS OF AN AUTONOMOUS VOYAGE, VIRTUALLY ALL TASKS IN CONTROLLING ORBITAL SPACESHIPS. TOGETHER WITH THE FLAGSHIP, THE WATCH IN THE WATERS OF THE ATLANTIC AND PACIFIC OCEANS ISBEING CARRIED OUT ALSO THESE DAYS BY THE SHIPS NEVEL, KEROSTROV, MORZHOVETS, (DAVYNSK) RISTNA, PERVITA AND BORUVICHI. IN AN ITERVIEW WITH THE RADIO CORRESPONDENT, USSR COSMONAUT PILOT ANATOLIY FILIPCHENKO NOTED THAT HERE AT THE CENTER THE SPECIALISTS ARE GIVING A HIGH APPRAISAL TO THE FIRST RESULTS OF THE SCIENTIFIC AND TECHNICAL EXPERIMENTS CARRIED OUT NIKOLAYEV AND SEVASTYANOV.

UNCLASSIFIED

USSR

UDC 615.28:547.333.4

PANARIN, Ye. F., SOLOVSKIY, M. V., and EKZEMPLYAROV, O. N., Institute of High Molecular Compounds of the USSR Academy of Sciences, Leningrad

"Synthesis and Antimicrobial Properties of Polymers Containing Quaternary Ammonium Groups"

Moscow, Khimiko Farmatsevticheskiy Zhurnal, Vol 5, No 7, July 1971, pp 24-26

Abstract: The synthesis and antimicrobial effect of copolymers of N-vinylpyrrolidone with (2-methacryloxyethyl)triethylammonium iodide and bromide are described. The degree of effect of the macromolecule, its size and the number of ammonium groups in it, is determined. The physical and chemical properties and antimicrobial activity of the mentioned copolymers are tabulated. With an increase in the proportion of the (2-methacryloxyethyl)-triethylammonium halides in the initial mixture, a reduction in the characteristic viscosity of the copolymer is observed. It was found that the polymers dissolve well in water in any ratio, and are strong polyelectrolytes.

The antimicrobial activity was determined by the method of serial dilutions using staph. aureus 209P and B.coli as the test culture. The values of the

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USSR

PANARIN, Ye. F., et al., Khimiko Farmatsevticheskiy Zhurnal, Vol 5, No 7, July 1971, pp 24-26

minimum bacteriostatic concentration for the monomers and copolymers of different composition and molecular weight are tabulated. The monomers turned out to be low-active compounds whereas their homopolymers demonstrated highest activity which in the case of the iodide exceeds the monomer activity by more than two orders. Copolymers with N-vinylpyrrolidone also exhibited noticeable activity which increased with an increase in the ammonium group content in the copolymer. Introduction of ammonium groups into polyvinyl-pyrrolidone did not lead to a sharp increase in toxicity.

1/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--CORRELATION BETWEEN STRUCTURE AND ACID STABILITY IN PHENOXYMETHYLPENICILLINS -U-

AUTHOR-(02)-PANARIN, YE.F., SOLOVSKIY, M.V.

COUNTRY OF INFO--USSR

SOURCE--ANTIBIOTIKI, 1970, VOL 15, NR 5, PP 426-431

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PENICILLIN, CHEMICAL STABILITY, MOLECULAR STRUCTURE, HYDROLYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/0146 STEP NO--UR/0297/70/015/005/0426/0431

CIRC ACCESSION NO--AP0114542

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0114542

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO ELUCIDATE THE CORRELATION BETWEEN THE STRUCTURE AND THE ACID STABILITY OF PENICILLINS, NUCLEAR SUBSTITUTED PHENOXYMETHYLPENICILLINS WERE SYNTHESIZED AND THEIR HYDROLYSIS AT PH 2.0 WAS STUDIED. IT WAS FOUND THAT SIMILAR TO PHENYLPENICILLINS ELECTRONE DONOR SUBSTITUENTS INCREASED THE REACTION RATE, WHILE THE ELECTRONE ACCEPTOR ONES DECREASED IT. SATISFACTORY CORRELATION BETWEEN THE LOGARITHMS OF THE REACTION RATE CONSTANTS AND HAMMET DELTA CONSTANTS WAS SHOWN. CONSTANT REACTIONS (P) WERE EQUAL TO MINUS 0.358, MINUS 0.350 AND MINUS 0.295 FOR 30, 35 AND 40DEGREES RESPECTIVELY. THE VALUE OF THE TRANSMISSION COEFFICIENT (PI) EQUAL TO 0.271 FOR, OCH SUB2 GROUP CORRESPONDED TO THE LITERATURE DATA FOR OTHER REACTION SERIES. THIS MAKES IT POSSIBLE TO USE THE CORRELATION ANALYSIS FOR PREDICTION OF ACID STABILITY OF NEWLY SYNTHESIZING PENICILLINS. FACILITY: INSTITUTE FOR HIGH MOLECULAR COMPOUNDS OF ACADEMY OF SCIENCES OF THE USSR, LENINGRAD.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202320014-5"

1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--TICHROMIN, A NEW COLORLESS REAGENT FOR THE PHOTOMETRIC DETERMINATION OF NIOBIUM -U-

AUTHOR-(03)-YAKOVLEV, P.YA., BASARGIN, N.N., PANARINA, N.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 505-10

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--NIOBIUM, PHOTOMETRIC ANALYSIS, STEEL, IRON ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0468 STEP NO--UR/0075/70/025/003/0505/0510

CIRC ACCESSION NO--AP0126220

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0126220
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TICHROMIN (3,3 PRIME (NOMETHYLIMINO)BIS(METHYLENE)DICHROMOTROPIC ACID) (I) WAS STUDIED AS A REAGENT FOR NB. I FORMS WITH NB A YELLOW COMPLEX IN ACID MEDIA, WITH MAX. ABSORBANCE AT 406-15 NM. THE MOST INTENSE COLOR CCCURS IN 2-4N HCL AND 2-3N H SUB2 SO SUB4. THE MOLAR ABOSRPTIVITY AT 414 NM IS 1.7 TIMES 10 PRIME4 IN A HCL MEDIUM AND 1.5 TIMES 10 PRIME4 IN A H SUB2 SO SUB4 MEDIUM. BEER'S LAW IS OBEYED IN THE 0-120 MUG NB-25 ML 2N HCL RANGE AT A I CONCN. OF 4 TIMES 10 PRIME NEGATIVE4 M; 3000 FOLD AMTS. OF TARTARIC, ASCORBIC, AND THIOGLYCOLIC ACIDS, 5000 FOLD AMTS. OF N SUB2 H SUB4, NH SUB2 OH, AND NA SUB2 SO SUB3, AND 200 FOLD SNCL SUB2 DO NOT INTEREFERE. THE DETN. OF 2 MUG NB-ML IS POSSIBLE IN THE PRESENCE OF 400 FOLD AMTS. OF CU, 150 FOLD CO AND NI, 100 FOLD V (IV), 35 FOLD CR(III), AND 25 FOLD ZR. EQUAL AMTS. OF TA, MO, AND TI INTERFERE, MO INTERFERENCE IS ELIMINATED WITH ARTARIC ACID AND TI BY MEASURING THE ABSORBANCE AT 2 WAVELENGTHS. THE METHOD CAN BE USED FOR THE SPECTROPHOTOMETRIC DETN. OF 0.1-2PERCENT NB IN STEELS AND FERROUS ALLOYS WITH A 3-7PERCENT RELATIVE ERROR. FACILITY: CENT. SCI.-RES. INST. FERROUS MET., MOSCOW, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--KINETICS OF AUTOCATALYTIC DEHYDROCHLORINATION OF POLYVINYL CHLORIDE -U-

AUTHOR-(03)-MINSKER, K.S., MALINSKAYA, V.P., PANASENKO, A.A.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(5), 1151-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MATHEMATIC EXPRESSION, CHEMICAL REACTION KINETICS, POLYVINYL CHLORIDE

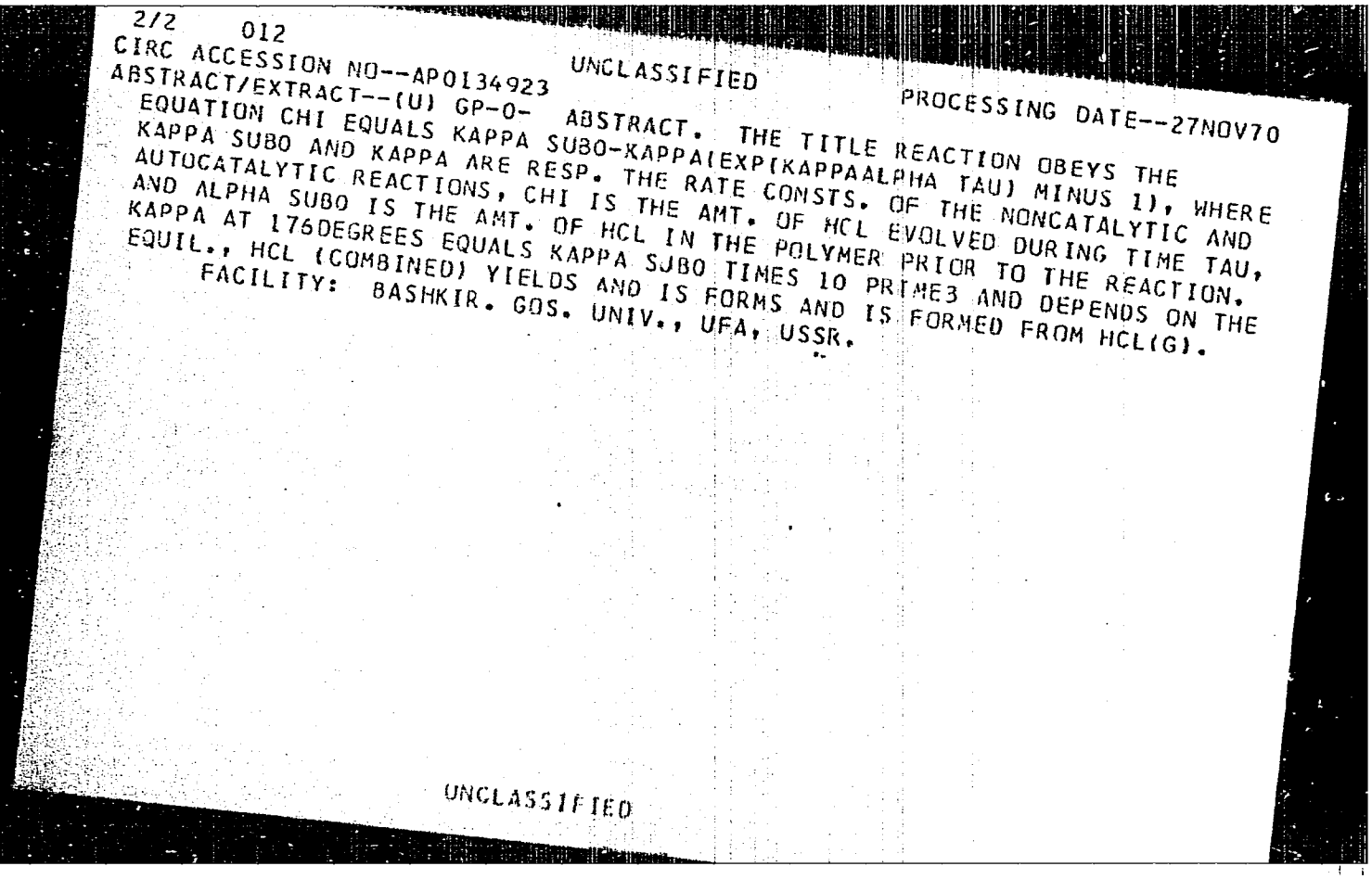
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1249 STEP NO--UR/0459/70/012/005/1151/1154

CIRC ACCESSION NO--AP0134923

UNCLASSIFIED



2/2 012 UNCLASSIFIED
CIRC ACCESSION NO--AP0134923 PROCESSING DATE--27NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE REACTION OBEYS THE EQUATION CHI EQUALS KAPPA SUBO-KAPPA(EXP(KAPPAALPHA TAU) MINUS 1), WHERE KAPPA SUBO AND KAPPA ARE RESP. THE RATE CONSTS. OF THE NONCATALYTIC AND AUTOCATALYTIC REACTIONS, CHI IS THE AMT. OF HCL EVOLVED DURING TIME TAU, AND ALPHA SUBO IS THE AMT. OF HCL IN THE POLYMER PRIOR TO THE REACTION. KAPPA AT 176DEGREES EQUALS KAPPA SUBO TIMES 10 PRIME3 AND DEPENDS ON THE EQUIL., HCL (COMBINED) YIELDS AND IS FORMS AND IS FORMED FROM HCL(G).
FACILITY: BASHKIR. GOS. UNIV., UFA, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--REACTION OF MONOMERS WITH CARBONYL OR NITRILE GROUPS WITH METALS AND SOME REACTIONS OF THE RESULTING ANIONRADICALS -U-

AUTHOR-(05)-PANASENKO, A.A., GOLUBEV, V.B., ZUBOV, V.P., KABANOV, V.A., KARGIN, V.A.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(4), 865-72

DATE PUBLISHED----------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MONOMER, CARBONYL RADICAL, NITRILE, SODIUM, MAGNESIUM, ACRYLATE, ACETONE, BENZOIC ACID, FREE RADICAL, OLIGOMER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0683 STEP NO--UR/0459/70/012/004/0865/0872

CIRC ACCESSION NO--AP0124355

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124355

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE VAPORS OF NA OR MG WERE CONDENSED ON A SURFACE, COOLED WITH LIQ. N, TOGETHER WITH THE VAPORS OF ME METHACRYLATE, ME ACRYLATE, ME BUTYRATE, ET BENZOATE, ACH, ETCHO, ISO PRCHO, TERT BUCHO, ACROLEIN, ACETONE, H SUB2 C:CHCN, H SUB2C:CMECN, OR ETCN. THE CONDENSATE CONTAINED FREE RADICALS. THE REACTIONS OF THESE MONOMERS WITH NA OR MG GAVE ANION RADICALS, SUCH AS (ME SUB2 CO), WHICH INTIATED THE OLIGOMERIZATION BY ANIONIC MECHANISM. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--CALCULATION OF A THERMODYNAMIC ACTIVITY COEFFICIENT IN INFINITELY DILUTED SOLUTIONS OF NONELECTROLYTES USING THE THEORY OF FREE VOLUME -U-

AUTHOR-(04)-STEPANOV, V.M., DEVYATYKH, G.G., PANASENKO, A.G., SHIROBOKOV, M.YA.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 445-51

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CALCULATION, THERMODYNAMIC PROPERTY, HEAT OF VAPORIZATION, ACTIVITY COEFFICIENT, FLUID STATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1426 STEP NO--UR/0076/70/044/002/0445/0451

CIRC ACCESSION NO--AP0116873

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116873

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOUR EQUATIONS ARE DERIVED FROM COMPUTING THE THERMODYNAMIC ACTIVITY COEFF. ON THE BASIS OF THE FREE VOL. THEORY. THESE EQUATIONS TAKE INTO ACCOUNT THE LOOSENING OF THE STRUCTURE OF A FLUID WITH THE RISE IN TEMP. WHICH CAUSES THE FORMATION OF HOLES IN THE FLUID. DATA COMPUTED BY MEANS OF THESE EQUATIONS WERE IN GOOD AGREEMENT WITH EXPTL. DATA. THE THERMODYNAMIC ACTIVITY COEFF. (GAMMA21) CAN BE COMPUTED FROM THE FOLLOWING: (FORMULA SHOWN ON MICROFICHE). FACILITY: NAUCH.-ISSLED. INST. KHIM., GOR'K, GOS. UNIV. IM. LOBACHEVSKOGO, GORKI, USSR.

UNCLASSIFIED

USSR

UDC 614.31:628.16.067

PANASENKO, G. I., Candidate of Medical Sciences and OMEL'YANETS, N. I., Scientific-Research Institute of General and Communal Hygiene imeni A. N. Marzeyeva, Kiev

"Hygienic Evaluation of a Portable Ion Exchange Filter for Field Purification of Drinking Water

Moscow, Gigiyena i Sanitariya, No 7, 1972

Translation: A portable ion-exchange filter (PIF) which contains, in addition to ion exchange resins, biologically active fibers for disinfecting the processed water while simultaneously serving as a drainage device and which is used for field purification of drinking water, has been developed and tested.

The PIF (see illustration) consists of four ion-exchange columns connected in sequence by rubber tubes and enclosed in a case. The halves of the case are fastened by four Kapron bolts; each of the columns is placed in a recess and may be replaced easily. In carrying position, the column is equipped with two polyethylene covers, covered by a fitting.

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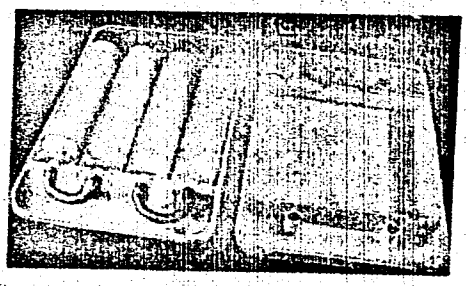
PANASENKO, G. I., and OMEL'YANETS, N. I., Gigiyena i Sanitariya, No 7, 1972



A Portable Ion-Exchange Filter (inside view)

The experimental PIF samples issued are intended for domestic use and in this case the water enters the filter after it has been connected to the water supply system by a rubber hose. The filter case has special recesses for fastening it to the wall. In order to obtain drinking water directly from a reservoir under field conditions, the PIF should be equipped with a device which provides for collection and filtration of the water (a sylphon, etc.).

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PANASENKO, G. I., and OMEL'YANETS, N. I., Gigiyena i Sanitariya, No 7, 1972

The assembled ion exchange filter is 215 mm high, 145 mm wide and 48 mm thick. Each of the four columns contains 60 ml of ion exchanger. The overall capacity of the device is 300-400 liters. In operation, it filters from 10-25 m/hr.

During passage of the water, the ion exchange columns are filled in the following order: the first two -- by IA-1r anionite, the third by AV-22 anionite and the fourth by AV-172 anionite. A dehydrogenated polyvinyl alcohol fiber with a quaternary ammonium base is used as a decontamination agent in the portable ion exchange filter. The PIF filtering column is made from Mark 10702 (MRTU Interrepublic Technical Standard]-6-05-1086-69) polyethylene which is authorized for use in the food industry. We established also that it does not change the quality of the water touching it and may be used for the preparation of PIF filtering columns.

We performed laboratory experiments to study the effect of the portable ion exchange filter on the quality of the processed water. In essence, we filtered tap water through the PIF at a filtration rate of 5-7 m/hr daily for 5 months. In the course of the experiment, we filtered 528 liters of tap water through the PIF; i.e., we filtered 2200 volumes of water through 1 volume of ion exchanger.

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As a result, it was established that the filtered water does not acquire foreign off-flavor and odors from contact with the ion exchange resins and its clarity and oxidizability is decreased 2-3 times in comparison to control water. The saline content of the processed water is unchanged and monomers are not observed in it (G. I. Panasenko and coauthors). We studied also the total microbial contamination of water filtered through the PIF. We found that the biologically active fiber used in the filter does not guarantee a disinfecting effect; on the contrary, the microbial contamination of the filtrate is increased from 15 to 140 times (G. I. Panasenko). Analogous results resulted from filtration of Arkhangel tap water (color value 60-90 degrees).

Thus, the biologically active fiber with a quaternary ammonium base which, under static conditions, possesses bacterial properties, does not cause, under dynamic conditions (filtration of water), a bactericidal effect, apparently because of the short (nearly 1 minute) duration of contact of the water and the fiber and the splitting from the polymer of active groups which ensure a bactericidal effect during prolonged filtration.

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PANASENKO, G. I., and OMEL'YANETS, N. I., Gigiyena i Sanitariya, No 7, 1972

Since chemical substances which often cause a biological effect on warm-blooded animals may be separated from ion-exchange resins, we performed chronic sanitary and toxicological experiments on laboratory animals for a final solution of the problem concerning the possibility of using PIF for production of drinking water. The experiment, which lasted for 5 months, involved three groups of 130-150 g male white rats. Each group received water from an automatic spigot; control rats received dechlorinated tap water, the first experimental group received water filtered through the PIF, filled only with biologically active fiber and the second experimental group received water, processed in a PIF, filled with IA-1r, AB-22-172 ion exchange resins and biologically active fibers.

We found that the general condition and behavior of the experimental animals and also their water consumption differed in no way from that of the control animals. Weight increase of the experimental groups was on a level with that of the control rats and averaged 25-30 g monthly.

In the course of the experiment, the percent content of hemoglobin in all groups of animals varied, but was within physiological norms (12.3-14.7 g

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PANASENKO, G. I., and OMEL'YANETS, N. I., Gigiyena i Sanitariya, No 7, 1972

percent). We did not obtain reliable results in a study of the erythrocyte, leukocyte and reticulocyte counts in the blood of all groups of animals. The formed elements of the blood of animals remained within physiological norms. The phagocytic activity of leukocytes, which was determined by the phagocytic number, varied from 3.59 to 4.49 in all groups.

The content of free SH-groups in the blood of animals changed insignificantly during the experiment and statistical processing revealed no reliable differences. The blood sugar level in experimental animals was the same as in control animals. Adrenalin loading did not induce any noticeable differences in control or experimental animals. The same results were obtained from a study of the latent iron-binding capacity of the blood transferrin.

We found no reliable differences in the weight coefficients of the internal organs and during a study of the ascorbic acid level in the adrenal glands. The study of the toxic properties of water treated by the PIF on transplanted cultures of Ner-2 and KB cells showed no cytopathogenic effect of the water. Pathohistological examination of the internal organs of sacrificed animals showed identical changes in the control and experimental groups.

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Conclusions

1. The portable ion exchange filter decreased the color value and oxidizability of high-color water 2-3 times. Water, treated with PIF, had no toxic effect upon transplanted Ner-2 and KB cells.
2. Prolonged consumption of the PIF processed water by animals did not harm their organisms.
3. PIF with anionites IA-1r, AB-22 and AB-172 may be recommended for producing drinking water under field conditions but only for supplementary disinfection of treated water.

Bibliography

1. Panasenko, G. I. In the book: Hygienic Evaluation of Bactericidal Tissue From Polyvinyl Alcohol Fiber. Kiev, p 23, 1969.
2. Panasenko, G. I., Vlasova, L. P., Miropol'skiy M.U. and others, In the book: Hygiene of the Use of Polymer Materials and Articles Made From Them. Kiev, p 198, 1969.

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USSR UDC 636.083.37

KARANFILOV, N. I., Chairman of Kolkhoz imeni M. V. Frunze, Ovidiopol'skiy Rayon, Odesskaya Oblast, Honored Veterinarian, Ukrainian SSR, FAYTEL'BERG, R. Q., Doctor of Medical Sciences, TKACHENKO, G. P., Candidate of Biological Sciences, Senior Scientific Associate, Odessa State University imeni M. I. Mechnikov, MEDVEDEVA, Ye. I., Doctor of Biological Sciences, PANCHENKO, K. A., PETRENKO, Ye. V., LUKINA, G. D., Senior Engineers, BOYKO, L. I., and SELICH, Ye. F., Engineers, Odessa Technological Institute of the Food Industry imeni M. V. Lomonosov

"The Effect of a Preparation Obtained From Algae (Phyllophora) Upon the Weight Gains and Blood Composition of Calves"

Moscow, Zhivotnovodstvo, No 3, Mar 72, pp 82-83

Abstract: A valuable preparation containing amino acids and peptides has been developed from industrial Phyllophora waste by the Odessa Technological Institute of the Food Industry (Author's Certificate No 287959). Employed as a fodder supplement, 4.5 kg of the preparation yield an incremental weight gain of 11.43 kg, in other words, 2.54 kg of meat for each kilogram of the preparation, which costs less than 30 kopeks. The erythrocyte number of the calves increases, as does the hemoglobin content and the total protein content. Additional testing is recommended.

(5)

USSR UDC 621.357.12:661.418(088.8)

EBERIL', V. I., YELINA, L. M., SHKRED, V. V., TSEYTLIN, R. I., YURKOV, L. I., GURVANOV, L. S., KORYAGIN, V. I., PANCHENKO, M. B., and SHANTALIN, A. M.

"Process of the Decomposition of Active Chlorine in Solution"

USSR Authors' Certificate No 335211, filed 20 Jun 60, published 15 May 72 (from Referativnyy Zhurnal -- Khimiya, No 8, (II), 1973, Abstract No 8I254P)

Translation: A process is patented for the dissociation of active chlorine in solutions by means of heating, which is distinguished in that, in order to increase the velocity of dissociation, a process occurs in order to maintain a stable pH value for the solution equal to 5.5 to 6.5. It is proposed to carry out the process by bubbling gases which have been pre-heated and humidified to 60-100% (relative to the temperature of the solution). The value of the pH of the solution during the process starys in the region 5.5 to 6.5 by the addition of alkaline or alkali salts to the solution. The temperature of the solution is confined to the region 60-100°C. The process is carried out either as a batch or as a continuous system, for example, for the flow of the pre-heated solution across a step-wise capacity pattern. The solution is made alkaline at the beginning of the process; that is, the most rapid reduction in the pH of the solution occurs during the first stage of the pro-

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EBERIL', V. I., et al., USSR Authors' Certificate No 335211, filed 20 Jun 60, published 15 May 72

cess when velocity of dissociation of the active chlorine is highest. From 50-100% of the alkali reagents supplied in the solution are introduced during the first 60 minutes of the process.

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USSR

UDC 546.824'32

BELYAYEV, E. K., PANASENKO, N. M., and TOMENKO, V. M.

"Conditions of Potassium Titanate Formation"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 10, No 3, Mar 74, pp 460-464

Abstract: The interaction of K_2CO_3 with TiO_2 was studied to determine the phase composition products and conditions for the formation of potassium titanates. Different molar ratios of the initial compounds were mixed and roasted for four hours at 800-820° C with the resulting products subjected to chemical and x-ray analysis. The following compounds were formed: $K_2O.TiO_2$, $2K_2O.3TiO_2$, $K_2O.2TiO_2$, $K_2O.4TiO_2$, and $K_2O \cdot 6TiO_2$. Potassium titanates ($12K_2O \cdot 13TiO_2$, $K_2O \cdot 3TiO_2$, and $K_2O \cdot 5TiO_2$), reported in other literature sources, were not detected in the study. It was shown that the formation of potassium titanates proceeds by means of sequential reactions with the initial formation of potassium dititanate with potassium carbonate or TiO_2. Four figures, eight bibliographic references.

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1/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--FORMATION OF TETRASODIUM TRITITANATE IN MIXTURES OF SODIUM CARBONATE AND TITANIUM DIOXIDE -U-

AUTHOR-(03)-BELYAYEV, E.K., PANASENKO, N.M., LINNIK, YE.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 652-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL REACTION MECHANISM, X RAY ANALYSIS, SODIUM COMPOUND, CARBONATE, TITANATE, TITANIUM DIOXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1884 STEP NO--UR/0078/70/015/003/0652/0656

CIRC ACCESSION NO--AP0115703

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0115703

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTERMEDIATE WHICH FORMS DURING A REACTION OF NA SUB2 CO SUB3 WITH TIO SUB2 AT A MOLE RATIO GREATER THAN 0.333 WAS STUDIED BY X RAY AND CHEM. ANALYSES. THE INTERMEDIATE IS 2NA SUB2 O.3TIO SUB2 (I) (BETA,TITANATE OR TETRA,NA TRI,TITANATE). THE MECHANISM OF THE REACTION OF NA SUB2 CO SUB3 WITH TIO SUB2 IN A 2:3 MOLE RATIO WAS STUDIED. THE REACTION GIVES I AND 4NA SUB2 O.5TIO SUB2 (II) AS PRODUCTS. I DISPROPORTIONATES TO II AND NA SUB2 O.3TIO SUB2.

UNCLASSIFIED

USSR

UDC 536.7+66-971+541.124:546.34:546.264+661.882.2

BELYAYEV, E. K., PANASENKO, N. M., and TOMENKO, V. M.

"Thermodynamics and Mechanism of Formation of Titanates in a Mixture of Lithium Carbonate and Titanium Dioxide"

Moscow, Neorganicheskiye Materialy, Vol 7, No 4, Apr 71, pp 648-651.

Abstract: A thermodynamic basis is provided for the primacy of formation of metatitanate in mixtures of lithium carbonate and titanium dioxide. In the system Li_2O-TiO_2, the formation of three titanates was confirmed: lithium metatitanate, dititanate, and trititanate. In mixtures of Li_2CO_3 : TiO_2, metatitanate is first formed. The lithium dititanate is formed by interaction of titanium dioxide with lithium metatitanate. Lithium trititanate is formed by successive reactions of titanium dioxide with the metatitanate and dititanate.

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UDC 536.7+66-971+541.124:546.34:546.264+661.882.2

BELYAYEV, E. K., PANASENKO, N. M., and TOMENKO, V. M.

"Thermodynamics and Mechanism of Formation of Titanates in a Mixture of Lithium Carbonate and Titanium Dioxide"

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Abstract: A thermodynamic basis is provided for the primacy of formation of metatitanate in mixtures of lithium carbonate and titanium dioxide. In the system Li_2O-TiO_2, the formation of three titanates was confirmed: lithium metatitanate, dititanate, and trititanate. In mixtures of Li_2CO_3 : TiO_2, metatitanate is first formed. The lithium dititanate is formed by interaction of titanium dioxide with lithium metatitanate. Lithium trititanate is formed by successive reactions of titanium dioxide with the metatitanate and dititanate.

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PANASENKO, P. V.

Microelectronics

JPRS 57333

25 October 1972

MICROELECTRONICS

Excerpts from Russian-language book edited by F. V. Lukin; Mikroelektronika, No 5, 1972, Sovetskoye Radio Publishing House, Moscow, UDC 621.382:621.396.6-181.5.

CONTENTS

This article concerns questions of constructing integrated internal memories on supplementing MOP transistors from uniform subsystems. The article examines methods of optimal division for uniform subsystems of the internal memory structure with centralized and distributed control. The article cites a comparative analysis of different methods of constructing an internal memory based on speed of response and required power. The article examines the characteristics of the structure of integrated subsystems for an internal memory with distributed control. On the basis of the comparative analysis of different types of memory cells cited in the article the best circuit for the cell is selected. The structure and the theoretical circuit is given for the memory subsystem developed for integrated execution. Based on the results of the analysis and the experiment, the basic parameters of the integrated internal memory are evaluated.

The article contains 10 figures and 18 bibliographic references.

UDC 621.382.2

Allowing for Nonuniformity in the Distribution of Defects in Evaluating the Yield Probability of Suitable Integrated Semiconductor Circuits. Valiyev, K.A., Kokin, A.P., Kravchenko, G.G., and Parafov, B.V. In the Collection Mikroelektronika, edited by F.V. Lukin, No 5, p 151, Sovetskoye Radio Publishing House, 1972.

A method is suggested for predicting the yield of suitable circuits by allowing for the nonuniform distribution of defects. It is shown that with increase in the complexity of the circuits and increase in the average number of defects on the circuit that accompany it, the influence of the nonuniformity of their distribution on the percent of yield of suitable circuits also grows.

The article contains 1 figure, 2 tables, and 7 bibliographic references.

UDC 621.382.8—[illegible]621.396.6-182.9

Submanosecond Memory Element on the Basis of the Gunn Effect in Gallium Arsenide. Valiyev, K.A., Kravchenko, G.G., Kokin, A.P., and Parafov, B.V., in the Collection Mikroelektronika, edited by F.V. Lukin, No 5, p 151, Sovetskoye Radio Publishing House, 1972.

The article examines a submanosecond memory element on the basis of the Gunn effect in gallium arsenide for use in superoperational memory devices with random sampling during

recording and readout. The memory element consists of two four-electrode Gunn instruments, the first of which serves for recording and storage, the second of which serves for readout of the stored information. The time of the recording-readout cycle is about 0.5 nsec. The power computed in storage mode 1 is about 100 mW; in storage mode 0 it is about 115 mW.

The article contains 4 figures and 3 bibliographic references.

UDC 681.142 → 621.374.3

Diode-Transistor Logic Circuit With Feedback. Naumov, Yu.Ye. and Puchkov, I.F. In the Collection Mikroelektronika, edited by F.V. Lukin, No 5, p 166, Sovetskoye Radio Publishing House, 1972.

The article gives a theoretical analysis of the electrical parameters of a circuit with feedback; its advantages are analyzed in comparison to the diode-transistor circuit without feedback. It is shown that the use of a feedback circuit is especially effective in designing micropower circuits. An experimental investigation is given for the circuit with feedback in the micropower band a comparison is given with the microcircuit "Mikrovatt-1".

The article contains 11 figures, 1 table, and 6 bibliographic references.

UDC 621.382.029.64

Logic Elements on Gunn Diodes. Voronkova, G.M., Orlova, L.K., Starosel'skiy, V.I., and Sanal'nikov, A.M. In the Collection Mikroelektronika, edited by F.V. Lukin, No 5, p 182, Sovetskoye Radio Publishing House, 1972.

The article describes the properties of experimental samples of planar Gunn diodes. On 200-μm long samples the authors make a current impulse shaper and memory elements of two types.

The article contains 6 figures, 1 table, and 5 bibliographic references.

UDC 621.375.001.24:621.382.32

Static Analysis of the Simplest Differential Cascade on MDP Transistors. Stepanenko, I.P. In the Collection Mikroelektronika, edited by F.V. Lukin, No 5, p 190, Sovetskoye Radio Publishing House, 1972.

USSR

UDC 669.18:621.746.58

DOROKHOV, V. I., PALYANICHKA, V. A., KLEMESHOV, G. A., YEVTYUTOV, V. P., GLAZOV, V. I., PANASENKO, V. G., RYABININ, B. G., and ROSTORGUYEV, V. D., Ukrainian Scientific Research Institute of Metals

"Casting of Large Sheet Ingots of Low-Alloy Steel Under Protective Slag Coating"

Moscow, Metallurg, No 3, Mar 72, pp 17-19

Abstract: Joint investigations of the Ukrainian Scientific Research Institute of Metals and the Zhdanov Plant imeni Il'ich, revealed that stratifications in sheets of silicomanganous steel can be caused by accumulations of macro-inclusions of endogenic origin or increased content of hydrogen. Experiments in casting sheet ingots of silicomanganous steel 09G2S, weighing 118-27.0 tons, under a protective coating of synthetic slag, are described. The experiments were conducted in order to decrease stratifications resulting from nonmetallic impurities. It was found that by using slag with optimum physico-chemical properties in casting steel, the content of oxide inclusions can be lowered by more than 30% and stratifications can be practically eliminated in thick sheets. The nonmetallic inclusions do not change

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USSR

DOROKHOV, V. I., et al., Metallurg, No 3, Mar 72, pp 17-19

character, but are merely redistributed, and a refining of metal from oxides, particularly from alumina, takes place. One illustration, two tables.

Microbiology

USSR

UDC 575.123:576.851

IGNATOV, V. V., SHENDEROV, B. A., PANASENKO, V. I., PIDENKO, A. P., and MAGAGINA, A. N., Saratov State University imeni N. G. Chernyshevskiy, Saratov

"Elimination of the Genetic Determinants of Resistance in Staphylococcus aureus Under the Effect of an Intensive Electromagnetic Field"

Moscow, Genetika, Vol 9, No 4, Apr 73, pp 57-61

Abstract: Two strains of Staph. aureus, 33 and 1074, were subjected to the action of an electromagnetic field with a frequency of 2375 megacycles and an intensity of 1516 kw. The strains, which had been isolated from patients, were typical with respect to their microbiological properties. They were polyresistant to penicillin, tetracycline, chloramphenicol, streptomycin, erythromycin, mercuric chloride, and albucide. Under the action of the electromagnetic field, some of the determinants of drug resistance were eliminated. The effect was due to the action of heat produced by the electromagnetic waves. A great number of cultures differing with respect to the determinants of drug resistance that had been eliminated could be segregated. After being stored for 10 mos in 0.8% Hottinger agar at 4°, the majority of segregated cultures retained their new type of drug resistance.

USSR

IGNATOV, V. V., et al., Genetika, Vol 9, No 4, Apr 73, pp 57-61

In some cases, however, there was restoration of some of the lost factors of drug resistance, but not of all of them. The phenomenon described can be used for the study of the extra-chromosomal determinants in microorganisms that are responsible for drug resistance.

2/2

Refractory Materials

USSR UDC 549.2

GROSHEVA, V. M., KARPINOS, D. M., PILIPOVSKIY, Yu. L., PANASEVICH, V. M., GAYOVA, T. I., AND SHAMATOV, Yu. M., Institute of Problems of Material Science, Academy of Sciences Ukr SSR

"Refractory Material on an Aluminum Nitride Base"

Moscow, Ogneupory, No 5, May 71, pp 54-56

Abstract: An investigation was made of the reinforcement of aluminum nitride by fiberlike single crystals of mullite ($3Al_2O_3 \cdot 2SiO_2$) synthesized at the Institute of Problems of Material Science, Academy of Sciences Ukr SSR. The refractory material is characterized by chemical inertness and high resistance to thermal shock. It is recommended for lining of high-temperature installations operating in aggressive media, in the presence of abrupt thermal cyclings, and by high mechanical loadings. Three figures, two tables, six bibliographic references.

1/1

Conferences

UDC: 621.791.36:061.3

USSR

PANASHCHENKO, N. I., Engineer

"All-Union Conference on the Use of Constructions Made From Low-Alloy High Strength Grades of Steel in Machine Building"

Moscow, Svarochnoye Proizvodstvo, No 5, May 73, pp 59-60

Abstract: The Fourth All-Union Conference on the use of constructions made from low-alloy high strength grades of steel with a yield stress of 60-90kg/mm^2 was held in Kiev from 23 to 26 January 1973. The conference was sponsored by the Council on the problem "New Welding Processes and Welded Constructions" with the State Committee of the Council of Ministers of the USSR on Science and Technology and by the Electric Welding Institute imeni Ye. O. Paton. The conference was attended by 170 participants, representing 67 organizations from 30 cities. The conference participants heard 39 reports.

USSR

UDC 621.791.038.1

PANASHCHENKO, N. I.

"Conference on the Application of Highly Durable, Low Alloy Steel Structures in Machine Building"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 70, pp 77-78

Abstract: An account is given of the Third All-Union Conference on the Application of Highly Durable, Low Alloy Steel Structures in Machine Building, held in Sverdlovsk on 9-11 June 1970. The conference was organized by the Scientific Council on the Problem of "New Welding Processes and Welding Construction" in the Goskomitet of the USSR Council of Ministers on Science and Technology, the Electric Welding Institute imeni Ye. O. Paton, the Ural Heavy Machinery Plant imeni S. Ordzhonikidze, and the NIIInformtyazhmash (Scientific Institute of Information on Heavy Machinery, Power Engineering, and Transportation Machinery Manufacture). More than 160 representatives of 56 industrial plants and schools participated. The introductory speech of the conference was made by N. I. Ryzhkov, Chief Engineer of the Uralmashzavod (Ural Machine Plant), who noted that wide experimental and industrial work has been done on the manufacture of machine-building welders of 14Kh2GMR and 14KhMNDFR steels. The summaries of other reports made to the conference are also given.

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USSR

UDC 669.71.053.4

PANASKI, G. A., and SMIRNOV, M. N.

"Obtaining Sodium Caustic Soda from Mixed Aluminate Solutions"

Tr. Vses. n.-i. i proyektn. in-ta alyumin., magn. i elektrodn. prom-sti (Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 126-135 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G135)

Translation: A study was made of the basic principles and results of experimental testing of a procedure for obtaining NaOH from Na-K-aluminate solutions by crystallization of Na hydroaluminate. An analytical expression is found which relates the amount of NaOH separated out to the depth of the preliminary decomposition of the mixed solution and the K_2O content in the ore. It is demonstrated experimentally that realization of the technological process is possible if the Na hydroaluminate precipitates contaminated by the extracted mixed solution are washed by the NaOH return solution. The optimal washing conditions are established. The KOH content in the caustic soda is analyzed. There are 2 illustrations and 5 tables.
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radio engineering

GLORIA

JPRS 56221

9 June 1972

Radioelektronika

USC 621.396.677.494

REQUIREMENTS FOR PARAMETERS OF OPTO-ACOUSTICAL PROCESSOR OF SIGNALS OF PHASED ANTENNA ARRAYS

[Article by B.V. Panasko; Kiev, Izvestiya Vuz SSSR -- Radioelektronika, Russian, Vol 15, No 1, 1972, submitted 2 November 1970, pp 46-51]

PANASKO, B.V.

This article analyzes the distribution of photic field at the output of an opto-acoustical processor of signals of a phased antenna array with a time separation of the signals from antenna elements. Requirements for the basic parameters of the processor are determined. It is shown that the values of parameters depend on the correlation time of the signals, antenna scanning sector, number of elements in the antenna and on the distance between the antenna elements.

A method of opto-acoustical processing of signals of a phased antenna array based on time separation of the signals received by the separate antenna elements was suggested in [1]. When using this method of processing it is necessary to select certain values of parameters of the processor among which may be included the time-separation interval T_D, the size of the ultrasonic transparency D and the intermediate frequency f_0. Since the requirements for parameters were not proven in [1] it appears expedient to determine them on the basis of analysis of expression for the photic field at the output of the processor under consideration during the reception of a signal of random shape.

Figure 1 shows a functional diagram of an opto-acoustical processor with a time separation of signals from antenna elements. In comparison with [1], an optimal filter 4, which makes it possible to process a signal of random shape, was added in this diagram.

The electronic portion of the processor designed for time separation and compression of signals from antenna elements consists of N frequency converters 1 [P], N delay lines 2 [LZ], a summation device 3 and the optimal filter 4 [OF].

The optical portion of the processor representing an opto-acoustical spectrum analyzer consists of a source of coherent light 5, an ultrasonic transparency 6 with a piezoacoustical converter 7 and the integrating lens 8.

USSR

GIPPIUS, A. A., VAVILOV, V. S., PANASYAN, Zh. R. and USHAKOV, V. V.

"Exciton Luminescence Line Reversal and the Fine Structure of Exciton Absorption in CdTe"

Kratkiye Soobshcheniya po Fizike (Brief Communications in Physics), No. 7, July 1970, pp 8-14

Abstract: Detailed measurements were made of photoluminescence, cathode luminescence, and reflection spectra at temperatures between 4.2 and 77°K. Spectral resolution was 10^{-4} ev. The reflection data was processed on the BESM-4 digital computer of the Physics Institute of the USSR Academy of Sciences. The spectral dependence of the absorption coefficient and the refraction index, found with the aid of the Kramers-Kronig relation, were used to calculate the luminescence spectrum. Certain features of self-absorption which were formerly ignored are taken into account. A layer of approximately 10^{-4} cm is excited during photo- and cathode luminescence. At 77 and 4.2°K the absorption coefficient is 5×10^4 and 2×10^5 cm^{-1}. The optical density of the excited layer is therefore extremely large (5 to 20) and the luminescence intensity is greatly weakened by self-absorption. Conditions, therefore, exist for reversal of the exciton lines, and such reversal was obtained both theoretically and experimentally. The

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GIPPIUS, A. A., et al, Kratkiye Soobshcheniya po Fizike, No 7, July 1970, pp 8-14

reversal is slightly to one side of the center of the luminescence line, shifted in the direction of larger energies. The negative absorption observed at low temperature disappears at higher temperature. The temperature-dependent doublet structure observed in the absorption spectrum is not clearly understood. It is suggested that the observed features may be due to the fact that the Kramers-Kronig relation does not account for the spatial dispersion of optical constants and special boundary conditions at the crystal surfaces. An unknown new effect may be in operation. Comparison of absorption and emission spectra shows that both absorption maxima coincide with the emission minimum, and, thus, self-reversal appears to exist in this case as well. Orig. art. has 2 figs. and 7 refs.

2/2

USSR

UDC 669.245.018.44(088.8)

PANASYUK, I. O., BRUSILOVSKIY, B. S., VILKOV, V. I., VORONIN, G. M., YEGOROV, YE. YE., YELKIN, I. S., KLIMOV, L. YA., KOVROVA, YE. A., KONTSEVAYA, YE. M., LYUBINSKAYA, M. A., MILENINA, YE. G., MIKHAYLOV, I. A., RAZUVAYEV, YE. I., SIROTKIN, A. I., SOLDATCHENKO, V. A., SPILITSIN, R. I., SHAPIRO, S. M.

"Nickel-Chromium Base Alloy"

USSR Author's Certificate No 276418, Filed 2 Jun 69, Published 16 Oct 70 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4I766P)

Translation: The heat-resistant alloy has the following composition (in %): C 0.03-0.1, Cr 30-40, W 3-5.5, Mo 2-4, Ti 0.5-1.5, Al 0.5-1.5, Nb 0.5-1.5, Ce 0.01-0.3, B 0.003-0.008, Ni, the rest. The alloy has increased heat resistance and also the following mechanical and physical-chemical properties at 1,100°: σ_B 8 kg/mm^2, δ 65%, $\sigma_{\text{stress-rupture}}$ 1 kg/mm^2, coefficient of linear expansion $15 \cdot 10^{-6}$ deg^{-1}, increase in weight after 100 hours of heating at 1,200° in the air 0.6 g/m^2. It is corrosion-resistant in a moist atmosphere under tropical conditions, in sea water, and in the products of combustion of highly sulfurous fuel.

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USSR

UDC 621.383.51:535.215.6

KOVALENKO, P.A., PANASYUK, L.M.

"Transverse Photoelectromotive Force At The Heterojunctions Si-A^2B^4"

Tr. po fiz. poluprovodnikov. Kishinëv Un-t (Works On Semiconductor Physics. Kishinëv University), 1971, Issue 3, pp 145-154 (from RZh:Elektronika i yeye primeneniye, No 6, June 1972, Abstract No 6B292)

Translation: An analysis is made of the dependence of the emf of open-circuit conditions and short circuit current on illumination, for heterojunctions formed by monocrystalline silicon and layers of compounds of tellurides of cadmium and zinc and sulfides and selenides of cadmium. The experimental results are compared with photoeffect theory of Kiting development for the case of a semiconductor--photoconductor. 4 ill. 2 tab. 8 ref. Author's abstract.

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USSR UDC 632.95

PANASYUK, V. G., KOSENKO, V. A., PANASYUK, L. V.

"Plant Growth Stimulator"

USSR Author's Certificate No 340382, filed 5 Feb 70, published 23 Jun 72 (from RZh-Khimiya, No 2 (II), Feb 73, Abstract No 2N555)

Translation: Phenoxyacetate derivatives of chlorinated hydrolized lignin of sunflow hulls containing up to 12.25% phenol groups and 13.40% carboxyl groups are recommended as plant growth stimulators. As a result of oxidation of the lignin during chlorination in the presence of water, quinone groups are formed which give rise to the physiological activity of the growth stimulator. Sulfate and other forms of lignins can also be used as the raw material to obtain the compound. The proposed stimulator promotes an increase in the height of wheat plants by 21.2% and corn by 80,8%; the length of the wheat root system increased by 49.1% and that of the corn roots by 69.4%. The catalase activity for wheat increases by 100 ml O_2/gram of leaf for wheat and 75 ml O_2/gram of leaf for corn. The vitamin C content in the leaves and the sugar content in the plant tissue is increased.

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USSR

UDC: 532

OSYPENKO, V. P., STETS'KIV, O. P., PANASYUK, P. V.

"Thermoelectromotive Force of Alloys in the Indium-Zinc System in the Molten State and on the Crystal-Melt Interface"

Visnyk L'viv. un-tu. ser. fiz. (L'vov University Herald. Physics Series), 1971, vyp. 6(14), pp 60-63, 110 (from RZh-Fizika, No 6, Jun 72, Abstract No 6Ye161)

Translation: An investigation is made of the thermoelectromotive force of alloys in the In-Zn system in the melting region and in the molten state. It is found that alloys with a high percent concentration of zinc have positive thermoelectromotive force, while indium-rich alloys have negative thermo-emf. Authors' abstract.

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USSR

UDC 632.954:543.9

ABRAMOVA, K. A., PANASYUK, T. D., and KALININA, Ye. A.

"Determination of Tardon 22-K in Soil and in Plants by the Biological Method"

Moscow, Khimiya v Sel'skom Khozyaistve, No 4, 1973, pp 58-60

Abstract: The content of tardon 22-K (3,5,6-trichloro-4-aminopicolinic acid) in soil and in plants was determined by the change of the area of smooth margin leaf of bean plants. The sensitivity of this test is 0.003-0.004 mg/kg for the determination of the content of tardon in soil; in plants the sensitivity depends on the volume of the composted sample. It has been established that the concentration of tardon in the straw of winter wheat was several fold higher than in the soil.

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1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--MECHANISM OF THE ACTIVATION OF CIS AND TRANS AZIDOCHLOROBIS(ETHYLENEDIAMINE)COBALT SALTS -U-

AUTHOR-(02)-PANASYUK, V.D., ARKHAROV, A.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 693-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--COBALT COMPLEX, ETHYLENEDIAMINE, CHEMICAL REACTION MECHANISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1470 STEP NO--UR/0078/70/015/003/0693/0696

CIRC ACCESSION NO--AP0116907

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0116907
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AQUATION OF CIS AND TRANS (CO(EN) SUB2 (N SUB3) CL) PRIME POSITIVE (EN EQUALS ETHYLENEDIAMINE) WAS STUDIED IN THE PRESENCE OF HNO SUB3 OR NACLO SUB3 IN AQ. OR AQ. ORG. SOLVENT SOLNS. THE AQUATION REACTION IS 1ST ORDER WITH ACTIVATION ENERGY (E SUBA) 21-23.9 KCAL-MOLE, DEPENDING ON SOLVENT USED. THE VALUES OF E SUBA, DELTAS PRIME NOT EQUIL TO, DELTAF PRIME NOT EQUIL TO AND FREQUENCY FACTOR FOR AQUATION IN 40PERCENT ME SUB2 CO, ETOH, OR ETHYLENE GLYCOL SOLNS. ARE GIVEN. FACILITY: KIEV. GOS. UNIV. IM. SHEVCHENKO, KIEV, USSR.

UNCLASSIFIED

USSR

UDC 632.95

PANASYUK, V. G., KOSENKO, V. A., PANASYUK, L. V.

"Plant Growth Stimulator"

USSR Author's Certificate No 340382, filed 5 Feb 70, published 23 Jun 72 (from RZh-Khimiya, No 2 (II), Feb 73, Abstract No 2N555)

Translation: Phenoxyacetate derivatives of chlorinated hydrolized lignin of sunflow hulls containing up to 12.25% phenol groups and 13.40% carboxyl groups are recommended as plant growth stimulators. As a result of oxidation of the lignin during chlorination in the presence of water, quinone groups are formed which give rise to the physiological activity of the growth stimulator. Sulfate and other forms of lignins can also be used as the raw material to obtain the compound. The proposed stimulator promotes an increase in the height of wheat plants by 21.2% and corn by 80,8%; the length of the wheat root system increased by 49.1% and that of the corn roots by 69.4%. The catalase activity for wheat increases by 100 ml O_2/gram of leaf for wheat and 75 ml O_2/gram of leaf for corn. The vitamin C content in the leaves and the sugar content in the plant tissue is increased.

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USSR UDC: 62-526

IL'IN, O. P. and PANASYUK, V. I., Belorussian Polytech. Inst.

"Delayed Servo System in Random Actions"

Leningrad, Izvestiya VUZ -- Priborostroyeniye, No 8, 1970, pp 37-40

Abstract: The purpose of this article is to investigate theoretically the possibility of improving the accuracy of automatic control systems for given random effects of the speed of the system with white noise disturbances input to the system. The authors use the method of statistical optimization by the criterion of the minimum mean-square error. Only systems tolerating a "pure" shift in time of the output relative to the input quantities -- systems for which only the shape of the output signal is important -- are considered. A preliminary choice of system structure is made on the basis of optimal filtration, with a "pure" delay element applied to the system input. Parallel to this element, the required value of the derivative of the input signal is applied under the assumption that this significantly reduces the error in abrupt changes in the speed of the system. An example to demonstrate the application of the authors' method is given.

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USSR UDC 538.561

KATYSHEV, Ye. G., PANASYUK, V. S., PANKRATOV, S. G., ROMANOVSKIY, V. F., SAMOSHENKOV, Yu. K., SOKOLOV, A. A., SPEKTOR, Ya. M., STEPANOV, B. M.

"Investigation of Electromagnetic Emission of a Modulated Electron Beam"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 42, No 11, Nov 72, p 2446

Abstract: The paper gives a block diagram and the parameters of an installation for studying velocity-modulated emission of an electron beam, as well as the results of measurements. The beam energy was 33 kev, beam current in the pulse 0.25 a, pulse duration 4 μs, pulse repetation rate 25 Hz, frequency of the modulating rf field 482 MHz, length of the emission region 55 cm, and pressure in the system 10^{-4} mm Hg. It was found that the emission power received by an antenna with effective area of 750 sq. cm at a distance of 2.5 m from the beam is 1 mw. The vector of intensity of the modulating electric field lies in a plane which passes through the axis of the beam. The ratio of emission intensity on the second harmonic to that on the first harmonic is approximately 5%.

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USSR

UDC 621.643.25

BURDENKOVA, Z. M., SHMURNOV, A. Ye., SHAPOSHNIKOV, A. P., and PANASYUK, V. S., Scientific Research Institute of Concrete and Reinforced Concrete (NIIZhB)

"Scientific Characteristics of High-Pressure Abrasion-Resistant Rock-Concrete Pipe"

Moscow, Stroitel'stvo Truboprovodov, No 9, Sep 73, pp 15-17

Abstract: A new construction of abrasion-resistant high-pressure rock-concrete pipes, 5300 mm long, ID=1500 mm, OD=2500 mm, is in development by NIIZhB. In order to determine the strength of these pipes and their agreement with theoretical calculations, first were tested for strength at inner hydrostatic pressure and at outer load specimens of rock-concrete bushings for pipe cores. In determining their supporting power by the bending moment $M=P \cdot r_m/\pi$, where P=linear concentrated force in kg.cm/m and r_m= =radius to middle wall thickness, the specimens were considered as thin wall structures ($h/D \leq 1/10$). Their derived deformation curves at outer load show that the rock-concrete material works within the elastic limit up to the development of cracks. A separate testing of the reinforcement revealed that in determining

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USSR

BUARDENKOVA, Z. M., et al.,Stroitel'stvo Truboprovodov, No 9, Sept 73, pp 15-17

the strength of reinforced rock-concrete pipes their resisting force can be taken only 10-15 % of their tensile strength. The characteristics of industrially manufactured rock-concrete pipes are indicated and recommendations are given to favor their introduction in practice.

2/2

USSR

PANASYUK, V. S.; SOKOLOV, A. A.; STEPANOV, B. M.

"Principles of the Construction and Possible Applications of Accelerators with Superstrong Magnetic Fields Obtained by Detonations"

Moscow, Atomnaya Energiya; November, 1972; pp 907-12

ABSTRACT: Several designs of single-stage accelerators with superstrong magnetic fields are presented. Betatrons and high-frequency cyclic accelerators, as well as direct-action accelerators, are considered. Various methods of particle injection and extraction are described. Possible applications of the cyclic accelerators described for obtaining superhigh-energy particles are assessed. Such accelerators seem promising for the acceleration of beams of secondary particles as well as for experiments on intersecting beams of μ-mesons and π-mesons, of fundamental importance in high-energy physics.

The article includes 14 equations and five figures. There are 10 references.

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USSR

UDC 620.171.3

PANASYUK, V. V., SHNITSER, K. M., and KOVCHIK, S. YE., Physicomechanical Institute, Academy of Sciences Ukrainian SSR, Lvov

"Effect of Prestressing in Air and Water on the Cracking Resistance of Titanium Alloy VT-14"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 6, 1973, pp 10-13

Abstract: Results are presented from a study of the effect of static prestressing of VT-14 titanium alloy in air and tap water on its resistance to crack development. Results of the experiments for samples of the alloy prestressed to 0.8 and 0.4 of their breaking stress and without prestressing revealed that the resistance of VT-14 to crack propagation (in air at room temperature) depends on the prestress load P_i and the time under load. When samples were prestressed for up to 10 hours their resistance to crack propagation was sharply lowered, while from 10 to 100 hours there was an increase in cracking resistance and at 100 hours the value of cracking resistance K_{1s} exceeded the initial magnitude of K_{1s} drops drastically during the first few 1/2

USSR

PANASYUK, V. V., et al., Fiziko- Khimicheskaya Mekhanika Materialov, Vol 9, No 6, 1973, pp 10-13

few hours under load for samples prestressed to 0.8 and 0.4. Then there is a rise in K_{1s} where maximums are reached around 100 hours, with the value of K_{1s} higher for the samples prestressed to 0.8 of their breaking load than for the 0.4 P_i. From 100 to 500 hours the samples at 0.8 P_i maintain a constant K_{1s} while for the samples at 0.4 P_i the value of K_{1s} drops off gradually. The same relationships held true for samples prestressed and then held under various loads in water. Three figures, four bibliographic references.

USSR UDC 539.3

BEREZHNITSKIY, L. T., PANASYUK, V. V., TRUSH, I. I., L'vov

"Stress Intensity Factors Near Hard Acute-Angle Inclusions"

Kiev, Problemy Prochnosti, No 7, Jul 73, pp 3-7.

Abstract: A method is presented for determination of the stress intensity factors near hard inclusions with corner points. In the case when the function mapping the exterior of the inclusion on the exterior of a unit circle is fixed in the form of a series, the problem is reduced to solution of a system of 2N algebraic equations. The effectiveness of the algorithm for calculation of stress intensity factors suggested is illustrated with a number of examples, most of which are studied in this article for the first time.

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USSR UDC 669. 018.25.539.56

PANASYUK, V. V., SHNITSER, K. M., and KOVCHIK, S. YE., Physical-Technical Institute, Academy of Sciences Ukrainian SSR, L'vov

"Determination of the resistance of VT-14 Titanium Alloy to Brittle Fracture"

L'vov Fiziko-Khimicheskaya Mekhanika Materialov, No 3, 1973, pp 64-69

Abstract: The resistance of VT-14 titanium alloy to brittle fracture was studied by two schemes of loading with consideration of the effect of the medium and direction of crack development relative to the direction of rolling. The alloy studied has the following chemical composition (in %): 3.5-4.5 Al, 2.8-3.8 Mo, and 0.7-1.5 V. Two methods of loading samples are proposed: cantilever bend of a beam, and tension of a square plate, both of which are applicable to the methods of applying brittle cracks -- fatigue and impact. Four figures, one table, seven bibliographic references.

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USSR

UDC 539.3

PANASYUK, V. V., BEREZHNITSKIY, L. T., and TRUSH, I. I., Institute of Physico Mechanics, Academy of Sciences Ukrainian SSR, L'vov

"Crack Propagation in Composite Materials"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Academy of Sciences Ukrainian SSR, Vol 7, No 1, 1971, pp 108-110

Abstract: Conditions for the propagation of linear cracks, one apex of which lies in the inclusion material, and the other in the binder, were examined. An infinite isotropic body with a circular inclusion made of another homogeneous material was calculated. A linear crack was assumed to lie along a diameter of the inclusion and to enter the binder. The strength of adhesion between inclusion and binder was taken as not less than the strength of the components. A general expression was found for the limiting loads (exerted by uniformly distributed and mutually perpendicular forces) at which the crack can propagate at either terminus.

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USSR

UDC 539.3

PANASYUK, V. V., TEPLYY, M. I., L'vov

"Determination of Contact Stresses in the Case of Internal Contact of Cylindrical Bodies"

Kiev, Prikladnaya Mekhanika, Vol VII, No 4, 1971, pp 3-8

Abstract: The two-dimensional problem of elastic theory of internal contact between cylindrical bodies of nearly the same radii is solved for the case where there is no frictional force in the contact zone. The integrodifferential equation for determining the contact stresses is derived, and an exact solution of this equation is presented for the case where the materials of the contact bodies are identical. Solutions are given for certain other special cases of the investigated problem, and contact stress distribution diagrams are constructed. An elastic isotropic plate S_1 of unit thickness with a round hole of radius R_1 in which the round disc S_2 with radius $R_2 \leq R_1$ is inserted is proposed for study. The concentrated force pressing the disc S_2 against the edge of the hole in S_1 is applied in the center of the disc. Under the assumption that there is no friction between the contact bodies, only radial contact stresses occur. Thus, the problem consists in establishing the distribution law of the contact stresses (pressures) on the contact surface between the bodies.

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1/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ELASTIC EQUILIBRIUM OF AN UNBOUNDED BODY WEAKENED BY A SYSTEM OF CONCENTRIC CRACKS -U-

AUTHOR-(02)-ANDREIKIV, A.E., PANASYUK, V.V.

COUNTRY OF INFO--USSR

SOURCE--PRIKLADNAIA MEKHANIKA, VOL. 6, APR. 1970, P. 124-128.

DATE PUBLISHED----APR70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL CRACKING, ELASTICITY, BIBLIOGRAPHY, PHYSICS RESEARCH FACILITY, STRESS LOAD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1655 STEP NO--UR/0198/70/006/000/0124/0128

CIRC ACCESSION NO--AP0125277

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0125277

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE THREE DIMENSIONAL PROBLEM OF THE ELASTIC EQUILIBRIUM OF AN UNBOUNDED BODY WEAKENED BY AN INNER PENNY SHAPED AND TWO CIRCULAR CONCENTRIC CRACKS TO WHICH A SYMMETRIC LOAD IS APPLIED. THE PROBLEM IS FIRST REDUCED TO THE SOLUTION OF A SYSTEM OF INTEGRAL EQUATIONS AND THEN TO A SYSTEM OF FREDHOLM INTEGRAL EQUATIONS OF THE SECOND KIND. A SOLUTION TO THE LIMITING EQUILIBRIUM PROBLEM IS OBTAINED FOR THE CASE WHERE A NORMAL UNIFORM PRESSURE IS APPLIED ONLY TO THE SURFACE OF THE INNER CRACK. A FORMULA FOR CALCULATING THE CRITICAL LOAD IS ALSO DERIVED FOR THIS CASE.

FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, FIZIKO-MEKHANICHESKII INSTITUT, LVOV, UKRAINIAN SSR.

UNCLASSIFIED

USSR

UDC: 8.74

PANAYOTI B. N., POPOV, A. A.

"Iterational Method of Solution of a System of Linear Equations Using a Computer System"

Elektron. Tekhnika. Nauch.-tekhn. Sb. Mikroelektronika [Electronic Equipment, Scientific and Technical Collection on Microelectronics], 1972, No 1(35), pp 29-36 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V575, by the authors)

Translation: Microelectronic computer systems are generally multiprocessor systems. Using the example of solution of the system of linear equations, a new approach is suggested to the organization of the computer process in such systems, requiring no program correction in case of failure of processors. Convergence of an iterational process in a computer system consisting of computers of different productivities is demonstrated with arbitrary distribution of equations through the computers.

1/1

USSR

UDC: 66.076.001.12+002.2

BOGDANOV, S. V., PANAZDYR', V. V., SIKIRYAVYY, V. Ya., SUBBOTOVSKIY, D. Kh., SHEMARIN, V. N.

"Selection of Design and Thermal Insulation of Covers for Underground Compressed Gas Containers"

Moscow, Stroitel'stvo truboprovodov, No. 8, 1972, pp 16-18

Abstract: Underground isothermal containers for storage of compressed methane may use various structural versions of covers. The two most frequently encountered in world practice, the spherical cover and the standard roof with sealing base, are studied in this article. Analysis shows that the standard roofing with sealing base is more economical than the spherical roofing, due largely to the lower capital investments required. Comparison of two types of insulation of this cover indicate that they are equally economical.

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USSR

UDC 661.143

POSTOLOV, V. S., MANASHIROV, O. Ya., PANCHENKO, A. I.

"Chemical Composition of the Phases Formed in the Ternary System of Li_2CO_3-Ga_2O_3-$2GeO_2$"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collection of Scientific Works of the All-Union Scientific Research Institute of Luminophors and Materials of Extreme Purity), 1972, vyp. 7, pp 5-11) (from RZh-Khimiya, No 6 (II), 1973, Abstract No 6L159)

Translation: A study was made of the processes occurring in binary systems of Li_2CO_3-Ga_2O_3 and Li_2CO_3-GeO_2 with heating in the air to 1,000°. The chemical composition of the phases was studied, and the conversion sequence in the ternary system of Li_2CO_3:Ga_2O_3:GeO_2 = 1:1:2 was investigated with heating in the air to 1,000°. The results of the x-ray studies of the compound $LiGaGeO_4$ formed in the ternary system are presented. The compounds based on gallates and gallosilicates of the alkali metals are used as the photo and cathodoluminophors. The bibliography has 16 entries.

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USSR

UDC 621.396.677.01

PANCHENKO, B. A.

"Tensor Green Functions of the Maxwell Equations for Cylindrical Domains"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collections), 1970, vyp. 15, pp 82-91 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B2)

Translation: A study is made of the solution of problems for slots and dipoles located near curvilinear surfaces.

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1/2 044 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--INFLUENCE OF THE INTERACTION BETWEEN RADIATING ELEMENTS ON THE RADIATION PATTERN OF A LINEAR PHASED ARRAY -U-

AUTHOR--PARCHENKO, S.A.

COUNTRY OF INFO--USSR

SOURCE--RADIOTEKHNIKA I ELEKTRONIKA, VOL. 15, JUNE 1970, P. 1294-1296

DATE PUBLISHED----JUN70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS

TOPIC TAGS--ANTENNA RADIATION PATTERN, PHASED ARRAY ANTENNA, DIPOLE ANTENNA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0299 STEP NO--UR/0109/70/015/000/1294/1296

CIRC ACCESSION NO--AP0134103

UNCLASSIFIED

2/2 044 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134103

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CALCULATION OF THE INFLUENCE EXERTED BY INTERACTION BETWEEN RADIATING ELEMENTS ON THE RADIATION PATTERNS OF EQUIDISTANT PHASED ANTENNA ARRAYS COMPOSED OF COLLINEAR AND PARALLEL RESONANT HALF WAVE DIPOLES. RELATIONSHIPS ARE GIVEN WHICH MAKE IT POSSIBLE TO COMBINE THE FIELD COMPONENTS FROM INDIVIDUAL ELEMENTS TO OBTAIN THE RADIATION PATTERN OF THE ANTENNA IN CLOSED FORM. PLOTTED RESULTS SHOW A CHARACTERISTIC VARIATION IN EMISSION INTENSITY DUE TO CURRENT AMPLITUDE VARIATIONS DURING SCANNING RESULTING FROM THE MUTUAL EFFECTS OF NEIGHBORING ELEMENTS.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--ANOMALOUS REFLECTIONS OF ELECTROMAGNETIC WAVES FROM A DIFFRACTION GRATING WITH A DIELECTRIC LAYER -U-
AUTHOR-(02)-PANCHENKO, B.A., SOLOVYANOVA, I.P.

COUNTRY OF INFO--USSR

SOURCE--TZVVYZ RADIOFIZIKA, VOL. 13, NO. 3, 1970, P. 467-470

DATE PUBLISHED-------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--ELECTROMAGNETIC WAVE, DIFFRACTION GRATING, DELECTRIC LAYER, GREEN FUNCTION, DIELECTRIC WAVEGUIDE, HARMONIC GENERATOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/0145 STEP NO--UR/0141/70/013/003/0467/0470

CIRC ACCESSION NO--AP0110111
UNCLASSIFIED

USSR

UDC: 621.372.852.1

PANCHENKO, B. A., GAYNANOV, Kh. N.

"An Electronically Tunable SHF Filter Using the Effect of Ferromagnetic Resonance"

Tr. Ural'skogo politekhn. in-ta (Works of the Ural Polytechnical Institute), 1970, sb. 183, pp 36-42 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7B142)

Translation: The authors consider a filter in the form of a section of rectangular waveguide with symmetric inductive diaphragm, a spherical ferrite specimen being in place in the center of the aperture. Graphs are plotted for the parameters of the filter as a function of the width of the aperture for various degrees of coupling between the ferrite and waveguide. It is shown that the filter may be the band--pass or band-elimination type depending on the degree of coupling and the size of the aperture. Four illustrations, bibliography of six titles. N. S.

2/2 023 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0110111

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE INCIDENCE OF A PLANE ELECTROMAGNETIC WAVE ON A CONDUCTING SCREEN HAVING A PERIODIC ARRAY OF RECTANGULAR HOLES WITH A DIELECTRIC COATING. ON THE BASIS OF THE FLOQUET THEOREM, THE PROBLEM FOR AN INFINITE ARRAY IS REDUCED TO THE CASE OF DIFFRACTION ON A SINGLE PERIOD OF THE STRUCTURE. THE GREEN'S FUNCTION OF THE PROBLEM AUTOMATICALLY ACCOUNTS FOR THE EFFECTS OF NEIGHBORING HOLES. EXPRESSIONS ARE GIVEN FOR THE TRANSMISSION AND REFLECTION COEFFICIENTS, AND NUMERICAL RESULTS ARE PLOTTED FOR THE CASE OF NORMAL WAVE INCIDENCE. THE DATA SHOW THAT THE PASSAGE OF ELECTROMAGNETIC WAVES HAS A RESONANT CHARACTER WITH TWO TYPES OF RESONANCES: REGULAR FUNDAMENTAL AND HIGHER ORDER RESONANCES AND ANOMALOUS RESONANCES. THE ANOMALOUS RESONANCES ARE EXPLAINED BY THE ORIGIN OF PROPAGATING HIGHER HARMONICS OF WAVEGUIDE MODES IN THE DIELECTRIC LAYER. FACILITY: URAL'SKII POLITEKHNICHESKII INSTITUT, SVERDLOVSK, USSR.

UNCLASSIFIED

USSR

UDC: 621.396.677.4

PANCHENKO, B. A.

"Current Distribution in a Linear Antenna Array"

Tr. Ural'skogo politekhn. in-ta (Works of the Ural Polytechnical Institute), 1970, sb. 183, pp 21-24 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7B36)

Translation: The problem is solved for a co-phased equidistant array of resonance elements excited by separate oscillators. It is assumed that interaction takes place only between adjacent radiators. Two illustrations, bibliography of two titles. N. S.

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UDC: 621.396.677

USSR

PANCHENKO, B. A.

"Calculating the Coefficient of Transmission Through a Screen With Openings"

Tr. Ural'skogo politekhn. in-ta (Works of the Ural Polytechnical Institute), 1970, sb. 183, pp 17-20 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7B2)

Translation: The author considers normal incidence of a plane electromagnetic wave on a flat metallic screen with a two-dimensional rectangular grid of narrow rectangular openings. It is assumed that the wave is polarized in the plane of the screen. The effect of adjacent openings in rows is accounted for by the Floquet theorem, while the effect of adjacent openings in columns is accounted for by the element method. The procedure can be used to calculate the coefficient of transmission with regard to edge effects. Two illustrations, bibliography of seven titles. Author's abstract.

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1/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--POLARIZATION CHARACTERISTICS OF PERFORATED SCREENS -U-

AUTHOR--PANCHENKO, B.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. VUZ RADIOFIZIKA, VOL. 13, NO. 3, 1970, P. 465-467

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, NAVIGATION

TOPIC TAGS--ELECTRIC POLARIZATION, METALLIC SCREEN, SIGNAL TRANSMISSION, ELECTROMAGNETIC WAVE PROPAGATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0071 STEP NO--UR/0141/70/013/003/0465/0467

CIRC ACCESSION NO--AP0111265

UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0111265

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE TRANSMISSION COEFFICIENT FOR A PERFORATED SCREEN AS A FUNCTION OF THE ORIENTATION OF RECTANGULAR AND CROSSSHAPED NARROW OPENINGS AND OF FIELD POLARIZATION DURING NORMAL INCIDENCE OF THE WAVE ON THE SCREEN. IT IS SHOWN THAT THE TRANSMISSION COEFFICIENT FOR A SCREEN WITH OBLIQUE NARROW SLOTS IS PROPORTIONAL TO THE SQUARE OF THE COSINE OF THE INCIDENT WAVE'S POLARIZATION ANGLE. NUMERICAL RESULTS ARE GIVEN FOR CALCULATED VOLTAGE TRANSMISSION COEFFICIENTS OF STRUCTURES WITH LINEAR, OBLIQUE, AND CROSS SHAPED SLOTS. FACILITY: URAL'SKII POLITEKHNICHESKII INSTITUT, SVERDLOVSK, USSR.

UNCLASSIFIED